2021-09

DOES THE PACIFIC FLEET PRIVATE SHIPYARD PILOT PROJECT GIVE THE FINANCIAL FLEXIBILITY IT DESIRED?

King, Bryan W.

Monterey, CA; Naval Postgraduate School

NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

DOES THE PACIFIC FLEET PRIVATE SHIPYARD PILOT PROJECT GIVE THE FINANCIAL FLEXIBILITY IT DESIRED?

by

Bryan W. King

September 2021

Thesis Advisor: Philip J. Candreva
Co-Advisor: Robert J. Eger III

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE	*Form Approved OMB No. 0704-0188*

1. AGENCY USE ONLY *(Leave blank)*	**2. REPORT DATE** September 2021	**3. REPORT TYPE AND DATES COVERED** Master's thesis

4. TITLE AND SUBTITLE
DOES THE PACIFIC FLEET PRIVATE SHIPYARD PILOT PROJECT GIVE THE FINANCIAL FLEXIBILITY IT DESIRED?

5. FUNDING NUMBERS

6. AUTHOR(S) Bryan W. King

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Postgraduate School
Monterey, CA 93943-5000

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
N/A

10. SPONSORING / MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release. Distribution is unlimited.

12b. DISTRIBUTION CODE
A

13. ABSTRACT (maximum 200 words)

The purpose of this research is to determine if the Pacific Fleet private shipyard depot-level maintenance pilot program created financial flexibility by using Other Procurement Navy funds instead of Operation and Maintenance Navy funds. A questionnaire was sent to the Navy's Office of Budget and Pacific Fleet's comptroller and maintenance teams to understand what changes occurred and how they adapted to the changes. This thesis identified the positive and negative effects of the pilot and concludes that the Navy did benefit from the change in funding appropriations because it allowed for better contracting strategies by alleviating the time pressure of use or lose funds, which allowed for stable funding and competitive bids from contractors, reducing the amount of most contracts.

14. SUBJECT TERMS
pilot program, operations, maintenance, PACFLT, comptroller, procurement, Congress, transfer, upward obligation, depot maintenance

15. NUMBER OF PAGES
67

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	**18. SECURITY CLASSIFICATION OF THIS PAGE**	**19. SECURITY CLASSIFICATION OF ABSTRACT**	**20. LIMITATION OF ABSTRACT**
Unclassified	Unclassified	Unclassified	UU

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release. Distribution is unlimited.

DOES THE PACIFIC FLEET PRIVATE SHIPYARD PILOT PROJECT GIVE THE FINANCIAL FLEXIBILITY IT DESIRED?

Bryan W. King
Lieutenant Commander, United States Navy
BS, Northeastern University, 2004

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

from the

NAVAL POSTGRADUATE SCHOOL
September 2022

Approved by: Philip J. Candreva
Advisor

Robert J. Eger III
Co-Advisor

Amilcar A. Menichini
Academic Associate, Graduate School of Defense Management

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

The purpose of this research is to determine if the Pacific Fleet private shipyard depot-level maintenance pilot program created financial flexibility by using Other Procurement Navy funds instead of Operation and Maintenance Navy funds. A questionnaire was sent to the Navy's Office of Budget and Pacific Fleet's comptroller and maintenance teams to understand what changes occurred and how they adapted to the changes. This thesis identified the positive and negative effects of the pilot and concludes that the Navy did benefit from the change in funding appropriations because it allowed for better contracting strategies by alleviating the time pressure of use or lose funds, which allowed for stable funding and competitive bids from contractors, reducing the amount of most contracts.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

LIST OF FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

ADA	Anti-Deficiency Act
AOR	accumulated operating result
ASN (FMC)	Assistant Secretary of the Navy, Financial Management and Comptroller
ASN (RDA)	Assistant Secretary of the Navy, Research, Development, and Acquisitions
BES	budget estimate submissions
BSO	budget submitting office
CFMS	Command Financial Management System
CJCS	Chairman, Joint Chiefs of Staff
CMAV	continuous maintenance availability
CNO	Chief of Naval Operations
CR	continuing resolution
CRS	Congressional Research Service
DAU	Defense Acquisition University
DCNO	Deputy Chief of Naval Operations
DIRSSP	Director, Strategic Systems Programs
DPG	Defense Planning Guidance
DSG	Defense Strategy Guidance
FAA	fund administering agency
FMA	fleet maintenance activity
FMB	Navy Office of Budget
FY	fiscal year
FYDP	future years defense programs
GAO	Government Accountability Office
HAC	House Appropriations Committee
HASC	House Armed Services Committee
IMA	intermediate maintenance activity
JCIDS	Joint Capabilities and Development System
LLTM	long lead-time materials

LOA	line of accounting
MARSYSCOM	Marine Corps Systems Command
NAVAIR	Naval Air Systems Command
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply Systems Command
NDAA	National Defense Authorization Act
NETWARCOM	Naval Network Warfare Command
NMS	National Military Strategy
NSS	National Security Strategy
OMB	Office of Management and Budget
OMN	Operation and Maintenance, Navy
OPN	Other Procurement, Navy
OPNAV	Office of the Chief of Naval Operations
P2P	performance to plan
PACFLT	Pacific Fleet
PB	Presidential Budget
PBIS	Programming/Budgeting Information System
PDM	Program Decision Memorandum
PEO	Program Executive Office
POM	Program Objectives Memorandum
PPBE	planning, programming, budget, execution
RMC	Regional Maintenance Center
SABRS	System Accounting, Budgeting, and Reporting System
SAC	Senate Appropriations Committee
SASC	Senate Armed Services Committee
SCN	Ship Conversion, Navy
SECNAV	Secretary of the Navy
TYCOM	type commander
USD (C)	Under Secretary of Defense, Comptroller
USD (P)	Under Secretary of Defense, Policy
USFF	United States Fleet Forces Command
VCNO	Vice Chief of Naval Operations

WCF	working capital fund
WOO	window of opportunity

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

I want to thank my wife, Dee, for giving me the support and encouragement to complete this project. Without it, this research project would not have been completed. I also thank my advisors, Professors Phil Candreva and Bob Eger, for imparting their knowledge and patience. Lastly, I would like to thank FMB and PACFLT comptroller and maintenance teams for their time and candor in participating in this project.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

This thesis is a case study of the private shipyard maintenance pilot program Congress authorized in the Consolidated Appropriations Act of 2020. This research will compare the one-year Operation and Maintenance, Navy (OMN) against the three-year Other Procurement, Navy (OPN) funds to determine whether the change resolved the funding and flexibility problems previously experienced, created new problems, or created neutral changes.

A. BACKGROUND

The Navy operates four public shipyards in the United States: Norfolk Naval Shipyard and Portsmouth Naval Shipyard, servicing the East Coast and Puget Sound Naval Shipyard and Pearl Harbor Naval Shipyard, servicing the West Coast. Additionally, the Navy utilizes 26 private shipyards, 17 on the East or Gulf Coasts and nine on the West Coast or Hawaii, for up to half its depot-level maintenance requirements.

Due to Base Realignment and Closure decisions in the 1990s, the Navy closed four public shipyards. The remaining four public shipyards had enough capacity at the time to manage the workload, but today there is a lack of capacity (Clark, 2020). To better manage ship maintenance, the Navy began consolidating its intermediate maintenance activities (IMAs) with their public shipyards (Cain, 2006). Pearl Harbor began this pilot program in 1996, followed by Puget Sound in 2003 and concluding with Norfolk and Portsmouth in 2006. As a result, the Navy relies heavily on private shipyards to supplement the overburdened public shipyards. Martin et al. note that the public-private split of workload is approaching the legal limit of 50 percent of work done at each type of shipyard (2017).

With the Navy's recently increased focus on ship maintenance, former Assistant Secretary of the Navy for Research, Development and Acquisitions (ASN (RDA)), James Guerts, noted the Navy's shipbuilding plan is "only as good as our ability to continue to repair and modernize those ships once we build them" (Eckstein, 2019, para. 5). Guerts also spoke of his desire to include a long-range forecast for maintenance and modernization to accompany the 30-year shipbuilding plan. Additionally, Guerts is producing a Private

Sector Improvement program to address issues and barriers to realize on-time delivery of ships out of maintenance availabilities. To more effectively use private shipyards, Martin et al. suggest a change in funding strategies may be needed to achieve maximum results (2017).

Pacific Fleet (PACFLT) added language to the fiscal year (FY) 2020 President's Budget (PB), asking to keep available $3.3B OMN funding available until September 30, 2021. In short, PACFLT was asking Congress for two-year OMN money, whereas OMN money is normally one-year funding. Congress disagreed with the two-year OMN authorization, acknowledged the need for multi-fiscal year funding, and appropriated three-year OPN funding for a pilot program (U.S. Senate, 2020).

B. PURPOSE

This research aims to compare the results of the maintenance pilot program to the expectations from two different echelons of the Navy, the Secretariat and the fleet commander. The research draws conclusions about the ability to use OPN funds across multiple fiscal years, looking at the Navy Secretariat, Fleet comptroller, and Fleet maintenance planner perspectives. The Secretariat and fleet commander levels were chosen because they are the most heavily impacted by the change of funding sources. The fleet comptroller and fleet maintenance planners' perspectives were used to determine the impacts on the fleet commander because these offices will be required to change their policies and procedures to comply with the pilot program. The Navy's Office of Budget (FMB) perspective was used to determine the perspective of the Navy Secretariat because FMB is the office responsible for the budget formulation, justification, and execution. The Navy Secretariat is politically appointed and represents the civilian side of the Navy leadership.

C. RESEARCH QUESTIONS

The following is the primary research question:

1. Did changing funding sources from OMN to OPN achieve more financial flexibility for ship depot maintenance?

To answer the primary question, there are three secondary questions:

2. What was the reason to ask Congress to change the funding structure of ship depot maintenance?
3. What positive outcomes did the change to OPN create?
4. What adverse outcomes did the change to OPN create?

D. SCOPE AND METHODOLOGY

This thesis covers the PACFLT pilot program that started in FY20 and continues through FY22. The PACFLT pilot program is limited to contracted CNO maintenance availabilities in private shipyards. Data sources include answers to a Naval Postgraduate School Institutional Review Board-approved questionnaire (the Appendix) from FMB, PACFLT comptroller office (budget execution and budget formulation branches), and PACFLT maintenance planners (N43). Additional data sources include FMB quarterly and annual reports to Congress, Government Accountability Office (GAO) reports, Congressional Research Service (CRS) reports, Secretary of the Navy (SECNAV) budget justifications, public law and Congressional Joint Explanatory Statements.

E. ORGANIZATION

Chapter II presents a detailed overview of the levels of maintenance and issues the maintenance organization faces. Chapter III provides an overview of the government funding process and the historical funding mechanisms used by public and private shipyards since the 1950s. Chapter IV analyzes the questionnaire data from the perspectives of FMB, PACFLT comptroller office, and PACFLT maintenance planners. Chapter V gives conclusions, a summary, and areas for further research.

THIS PAGE INTENTIONALLY LEFT BLANK

II. NAVY MAINTENANCE ORGANIZATION

This chapter discusses the types of work done at each level of maintenance and the issues facing the maintenance organization. While this thesis is limited to one particular type of maintenance under contract at private shipyards, it is imperative to understand the maintenance levels to fully understand how a change in the funding process reverberates throughout the maintenance complex. A brief description of organizational and intermediate-level maintenance is included because uncompleted and deferred maintenance actions at these levels can be included in depot-level maintenance.

A. LEVELS OF MAINTENANCE

This thesis is focused solely on depot-level maintenance. Since depot-level maintenance can include organizational and intermediate-level maintenance, it will be helpful to understand the continuum of maintenance. Ship maintenance occurs at three different levels performed at various locations. Maintenance tasks are allocated to one level of maintenance based on capability, scope, and capacity to ensure proper accomplishment. Organizational maintenance is the lowest level of maintenance, typically performed onboard ships. The next higher level of maintenance is intermediate, performed at intermediate/regional maintenance facilities. Finally, the highest level of maintenance is depot-level, typically conducted at public or private shipyards.

1. Organizational Maintenance

Organizational maintenance is the lowest level of maintenance and is performed onboard the ship by Navy personnel. Tasks performed are either preventative or corrective. Ships are required to be as self-sufficient as possible. Still, due to the limited space and availability onboard, ships cannot perform certain types of maintenance they otherwise might be capable of completing. According to OPNAV Instruction 4700.7M (2019), typical organizational level tasks include:

- Facilities maintenance, such as cleaning and proper preservation

- Routine systems and component planned maintenance, such as inspections, systems operability tests and diagnostics, lubrication, calibration, and cleaning

- Corrective maintenance, such as hull, mechanical and electrical troubleshooting down to the lowest replaceable unit level, miniature and micro-miniature electronic repair, component change-out, and in some cases, complete disassembly and repair in place, and to restore components to operation

- Assistance to higher (intermediate or depot) level maintenance activities

- Verification and quality assurance of maintenance accomplished by other activities

- Ensuring documentation of all deferred and completed maintenance actions, whether performed by ship's force or by other activities (OPNAV, 2019).

Organizational maintenance can be assigned to a higher-level facility due to operational backlog, lack of equipment, lack of capacity, or to be included in a continuous maintenance availability (CMAV), a window of opportunity (WOO) or CNO availability. CMAVs and WOOs are intermediate-level maintenance performed at a ship's homeport. The only difference between a CMAV and a WOO is the length of the project. CMAVs must be at least 21 days, whereas WOOs take advantage of any maintenance period between 14 to 21 days. A CNO availability is depot-level work that can be accomplished either at the ship's homeport or a public or private shipyard. These availabilities last more than six months and can last for multiple years.

2. Intermediate Maintenance

Intermediate maintenance requires skills, equipment, or capacity not found onboard a ship. Navy and civilian personnel perform this level of maintenance at fleet maintenance

activities (FMAs). OPNAV's *Maintenance Policy for Navy Ships* (2019) state FMAs include:

- Intermediate Maintenance Activities
- Battle Group Maintenance Activities, usually located on a carrier
- Regional Maintenance Centers (RMCs)
- Submarine Refit and Support Facilities (OPNAV, 2019).

Additionally, intermediate tasks can include, but not limited to:

- Preventive maintenance
- Corrective maintenance
- Tests and inspections
- Provision of services such as electrical power, water, gas, and air replenishment and tool issues
- Installation of alterations
- Work on electronic circuit boards, components, modules, subassemblies, and other equipment coded for intermediate-level repair
- Calibration and repair services for electrical and electronic test and monitoring equipment, measuring pressure, vacuum, temperature and mechanical devices
- Technical assistance to ship's force in diagnosing system or equipment problems and assistance in repairs
- Assistance in the emergency repair and manufacture of unavailable replacement parts or assemblies (OPNAV, 2019).

Intermediate maintenance can happen anytime when a ship is not on a mission. A CMAV is TYCOM scheduled availability, typically between 30 to 90 days. Intermediate maintenance is supported in shorter timeframes, called a WOO, which generally lasts 2–4 weeks. Tasks that the intermediate activity cannot perform can be assigned to a depot-level activity if the work exceeds the intermediate maintenance facility capacity.

3. Depot Maintenance

Depot-level maintenance is the highest and most intensive of all the levels of maintenance. This thesis is focused solely on depot-level maintenance of contracted ship maintenance in private shipyards. Depot maintenance can be done in three locations: pierside, a public shipyard, or a private shipyard. Depot-level work done pierside will be limited in its scope. Maintenance done in shipyards tends to be intensive and typically lasts between 9–15 months—but can sometimes last for years.

OPNAV's *Maintenance Policy for Navy Ships* states that the typical depot work includes:

- repair
- fabrication
- manufacture
- assembly
- overhaul
- modification
- refurbishment and rebuilding
- testing and analysis
- design
- upgrade
- painting
- assemblies and subassemblies
- software, components, or end items that require specialized facilities, tooling, support equipment, personnel with higher technical skill, or processes beyond the scope or capacity of the intermediate maintenance actions (OPNAV, 2019, p. 6-1).

Depot-level maintenance is strategically planned years in advance of the availability. Multiple commands coordinate to get ships into and out of availabilities on time. The performance-to-plan (P2P) process has identified performance gaps. It has

removed barriers to execution in progress towards the CNO's goal of zero lost days of shipyard maintenance. Increased focus on on-time deliveries has reduced its average delay from 143 days in FY18 to completion three days ahead of schedule in FY20 (Office of the Assistant Secretary of the Navy (Financial Management & Comptroller, 2021). Additionally, the shipyards increased their on-time rate from 24 percent in FY18 to 72 percent in FY20.

Figure 1 shows the public and private shipyards in use by the Navy.

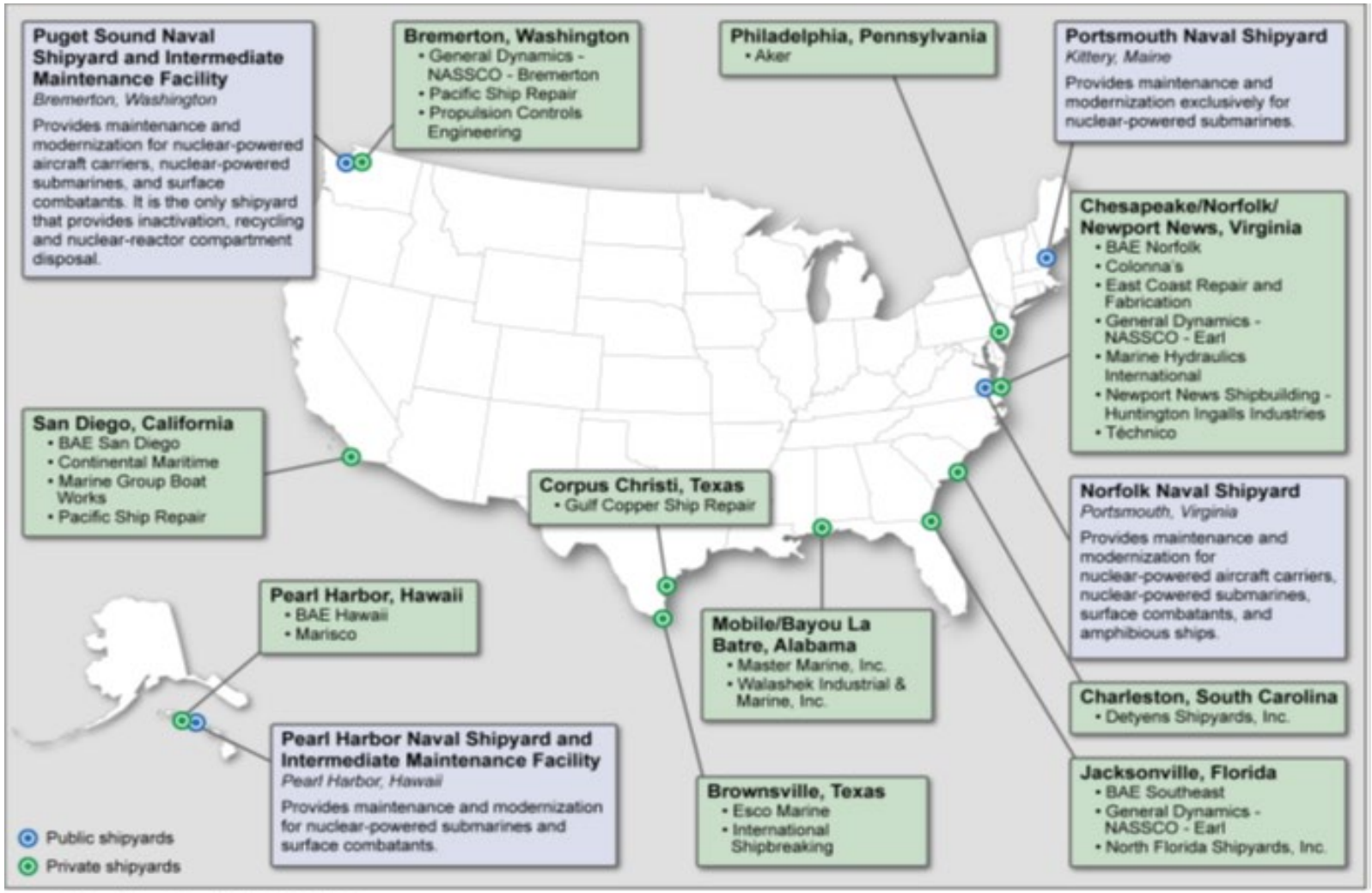

Figure 1. U.S. Public and Private Shipyard Locations. Source: GAO (2020).

B. MAINTENANCE ISSUES

According to Button et al. (2015), fleet commanders are responsible for scheduling the availability and repair actions. Many factors affect the Navy's ability to accomplish all required maintenance on time and within budget. The Navy's previous decision to reduce the crew size to save personnel costs has resulted in less organizational maintenance completed onboard (Maurer, 2019). Because less maintenance is being done on board, the minor problems that the ship's force could fix get worse. The worsening of the problems, the more maintenance is required. The more maintenance required, the longer and more expensive the availability is. The delayed shipyard delivery has a negative feedback loop on the remainder of the fleet. Other ships must delay their maintenance and extend their deployment, increasing the number of repairs needed once in maintenance. This negative cycle continues to repeat itself, ship after ship. Thus, a downward spiral of readiness issues began to impact the fleet. Button et al. (2015) also noted that deployment schedules, emergent repairs, unexpected availability growth would factor into the scheduling determination. Also, having a shipyard available to conduct the work will play a critical factor in determining the schedules. As mentioned in Chapter I, there is a finite number of shipyards available to conduct depot-level maintenance. The Navy also competes with the commercial shipping industry for availability in private shipyards.

Between 2003 through 2012, the Navy reduced personnel costs by reducing the crew size on its ships. This reduction in crew size resulted in an increased workload on the crew, which reduced or deferred the organizational maintenance performed on the ship (Maurer, 2019). Additionally, the deferred maintenance cost more in the long run because the problems worsened. Many of these repairs had to be fixed during depot-level maintenance because they were outside of organizational or intermediate-level capabilities, leading to longer and more expensive availabilities.

To ensure mission readiness during periods of high operational tempo, the Navy extended deployments, causing more wear and tear and resulting in more maintenance issues for the fleet. The high operational tempo places a higher priority on combat systems-related maintenance at a cost to systems that can reduce the ship's service life, for example, fuel and ballast tanks (Maurer, 2019).

Once in an availability, the maintenance team identifies and corrects a majority of the issues found. Depending on when the problem is identified and the steps to fix the problem, the availability may have to be extended. For example, suppose the fuel tank is one of the last items to be corrected, and the maintenance team finds a crack. In that case, the availability could be extended to fix the problem before it is safe for the ship to return to the fleet. If the crack is more prominent than anticipated or multiple cracks are found, it is considered growth work. If the crack is discovered that was not anticipated or contracted to be repaired, it is considered new work. This extension creates other issues for the fleet. First, the extended availability means another ship cannot start its availability on time due to capacity constraints. Second, the new work is not funded but is required. Third, the delay reduces the time available for operational training resulting in more underway days and less time for emergent repairs or other scheduled maintenance. Fourth, depending on the length of the extension, another ship may have to assume the scheduled deployment.

Suppose this new or growth work is found toward the end of the FY, contracting and funding deadlines inhibit effective resource management. New or growth work cost the Navy $332 million in FY18, $126 million in FY19 and $152 million in FY20 (Office of the Assistant Secretary of the Navy (Financial Management & Comptroller), 2021). In addition, the same report notes, in FY18, there were 13 upward obligation packages for seven ships totaling $108 million. In FY19, there were seven upward obligation packages for four ships totaling $66 million. Furthermore, in FY20, there were three upward obligation packages for three ships totaling $30 million. It should be noted that the downward trend may be from the shorter time between the end of the FY and the date the data was derived. The number of upward obligations increases as time passes. As discussed in Chapter III, the funds in all three FYs are still available to liquidate in-scope adjustments. Additionally, the Navy previously lost some of its buying power because not all OMN funds are expended every year. The Navy identified that ship maintenance accounts for 20 percent of all unobligated OMN funds (U.S. Senate, 2019).

The Chief of Naval Operations' renewed focus on on-time delivery meets the Navy's deployment needs. To address the decline in ship readiness and increase on-time completion rates, CNO Gilday established a goal to "predictably and effectively maintain

the fleet" in his *Design for Maintaining Maritime Superiority* (2019, p. 2). Gilday's goal is to increase the on-time delivery of ships from maintenance from 40% to 80%. Likewise, Naval Sea Systems Command (NAVSEA) Commander, VADM Bill Galinis, stated in an interview with USNI News, his three main focuses are "on-time delivery of ships in construction and maintenance, improving material availability to support maintenance activities and increasing capacity to do work by creating more efficiency and better flow within public and private repair yards" (Eckstein, 2020, para. 4). The comments by the CNO and NAVSEA show their priorities in dealing with ship maintenance. The Navy has reduced its average delay from 143 days in FY18 to three days ahead of schedule in FY20, increasing its on-time rate from 24 percent in FY18 to 72 percent in FY20 (Office of the Assistant Secretary of the Navy (Financial Management & Comptroller), 2021).

C. FUNDING ISSUES

Former ASN (RDA), James Guerts, testified to Congress that a lack of stable and consistent funding has adversely affected ship maintenance.

> [A] stable and predictable budget is crucial to the Navy's ability to execute contracts and maintenance actions required to keep our Navy in the fight … delaying these planned activities has drastic downstream impacts – injecting instability in the industrial base and creating large cost impacts and inefficiencies that can extend beyond the duration of the uncertainty" (*Ship and submarine maintenance*, 2019).

The Navy has identified, and Congress has acknowledged (U.S. Senate, 2020) that 20 percent of OMN funds that are unobligated come from the 1B4B ship maintenance account. The loss of this funding creates further readiness gaps for the fleet. The loss of funds has a two-fold effect. First, the Navy is unable to utilize the funds that were authorized and appropriated. Second, current year funds that were not programmed or budgeted could have to be used for any new or growth work that arises.

Stable funding means the contractors are assured of future work and can more accurately plan their projects and workforce. This stability has resulted in less business risk for the contractors, which results in more favorable contracts for the Navy.

The end of the fiscal year creates legally imposed timelines and barriers not seen outside the government. These barriers and timelines create a pressurized atmosphere within the government to use the available funds or are lost forever. The pressure to use the funds has resulted in business risk for the Navy. The Navy is rushed into shortened planning and scoping of work and has, historically, inadequately understood the material condition of the ships and undervalued the work needed to be performed to maintain the ships. This time constraint has led to rushed contracts that necessitate growth work and new work, which has led to upward obligations to pay for the work without using current year funds. Chapter III discusses the timeline restrictions in more detail.

Continuing resolutions (CR) have been a budgetary norm for the past 50 years. Since 1971, only ten times has the defense appropriations passed and signed into law on time (DeBruyne & Torreon, 2020). Debruyne & Torreon also noted that the average CR lasted 72 days when late. Having a CR last for over two months each year has a dramatic effect on the buying power of the Navy. The CR period is a business risk to the shipyards because of the uncertainty of future funding. Combining the reduced buying power and business risk for the contractors, the Navy has been negotiating from an inferior position.

A case study done by the GAO (Oakley, 2019) showcases the interconnectivity of maintenance and funding issues using a case study of the USS *Chosin*. In the case study, the ship had just completed a maintenance availability and was in a modernization availability. Additional maintenance work was added when the contractor was able to thoroughly inspect all of the areas within the work package, increasing the availability cost. In addition, long lead-time materials (LLTM) had to be ordered but were delayed "because the Navy was unsure of its process for funding this request" (Oakley, 2019, p. 33). The FY had elapsed, and OMN funds were now in an "expired" status while waiting on a funding determination. The Navy sent an upward obligation request for approval, delaying the availability for another five months.

The GAO noted that the Navy recognized that upward obligations approval timelines contribute to schedule delays because work cannot be completed without funding. However, the Navy did not explore any alternate solutions (Oakley, 2019). The GAO identified best practices for a successful pilot program to

- Establish well-defined, appropriate, clear and measurable objectives
- Clearly articulate assessment methodology and data gathering strategy that addresses all components of the pilot program and includes key features of a sound plan
- Identify criteria or standards for identifying lessons about the pilot to inform decisions about scalability and whether, how and when to integrate pilot activities into overall efforts
- Develop a detailed data-analysis plan to track the pilot program's implementation and performance and evaluate the final results of the project and draw conclusions on whether, how and when to integrate pilot activities into overall efforts
- Ensure appropriate two-way stakeholder communication and input at all stages of the pilot project, including design, implementation, data gathering and assessment (Oakley, 2019, pp. 35–36).

GAO notes that these best practices will allow for proper analysis of the PACFLT OPN pilot program and identify any hidden maintenance factors that would be obvious without delays caused by the upward obligations process (Oakley, 2019). In addition, the best practices will allow for a comparative analysis between the pilot program and the non-pilot availabilities. The goal of the analysis would be to advise Congress and Navy leadership if this pilot program should be expanded.

THIS PAGE INTENTIONALLY LEFT BLANK

III. FUNDING PROCESS

This chapter will discuss the foundations of government funding with an overview of the three types of funding the Navy has historically used for ship depot maintenance: working capital fund (WCF), OMN, and now, OPN. The budget process starts years before the budget will come into effect. There are many different organizations and many different levels within those organizations that bear the final outcome in the process. It is essential to know the key players and functions to understand the impacts of changing funding sources on organizations presently and in the future.

A. FOUNDATIONS OF GOVERNMENT FUNDING

All funding is a product of Congressional action. Article I, Section 9 of the Constitutions states, "[n]o money shall be drawn from the Treasury, but in Consequence of Appropriations made by Law" (U.S. Const. art I, § 9). Furthermore, the Congressional Budget Act of 1974 requires the House of Representatives and Senate committees to provide budgets for which they have jurisdiction (31 U.S.C. § 302, 1974). For defense matters, the committees involved are the Budget, Armed Services, and Appropriations committees of the House and Senate. Congressional consideration about ship depot maintenance is not solely focused on the national security and national budget implications but on the effect the maintenance facilities have on local jobs and the industrial base.

Through the Office of Management and Budget (OMB), the President consolidates the Executive Departments' budget requests into the Presidential Budget (PB) and presents it to Congress by the first Monday in February.

Once the PB is presented to Congress, the Budget Committees are responsible for developing the annual budget resolution. The annual budget resolution sets the spending level or targets and spending limits. The budget resolution is a planning document for the authorizers and appropriators. As the budget resolution is not a law, it does not have to be sent to or signed by the President.

Once the budget resolution has been approved, the other committees of Congress begin their process. First, The House Armed Services Committee (HASC) and Senate

Armed Services Committee (SASC) are the authorizing committees for all bills relating to defense. The HASC and SASC are responsible for producing the National Defense Authorization Act (NDAA), which authorizes appropriations and individual programs. Each chamber's committee begins working on the NDAA separately but nearly simultaneously. Both committees hold hearings and markups before a committee vote and finally a House and Senate vote. Once passed, the House bill and the Senate bill are compared. If the two versions are not identical, a conference committee consisting of both the HASC and SASC is called to resolve the differences. Once the differences are reconciled, the committee presents their new bill to the full House and Senate for another vote. If approved, the NDAA goes to the President for signature into law.

The House Appropriations Committee (HAC) and Senate Appropriations Committee (SAC) produce 12 budget appropriations. Of concern to this thesis is the Department of Defense Appropriations Act. The Department of Defense Appropriations Act provides the budget authority to DOD to obligate funds for defense programs. The committee process is similar to the work of the HASC and SASC, except the Budget Appropriations Act must be originated by the HAC to comply with the Constitution. There is no requirement that the Appropriations Act must agree with the NDAA. Additionally, suppose the budget does not get signed into law by the start of the fiscal year. In that case, the Appropriations Committees can pass a CR to be signed by the President for short-term bridge funding until the full fiscal year's appropriation is signed into law. The appropriation authority for a CR is usually set at the previous year's level and typically does not authorize any new programs to be funded.

In summary, Congress passes the budget using three committees, the Budget, Armed Services, and Appropriations Committees. The Budget Committee sets the spending target for the next fiscal year. The Armed Services Committees authorize the programs and spending. Finally, the Appropriations Committee grants the funding to be spent. If a budget is not passed by the beginning of the fiscal year, a CR can be passed to keep the government funded at the prior year's authority.

B. PLANNING, PROGRAMMING, BUDGETING, EXECUTION

The Navy is working on three different budgets simultaneously, all in a different phase of the planning, programming, budgeting, execution (PPBE) process. Defense Acquisition University (DAU) (2021) defines the PPBE process as:

> PPBE is the primary Resource Allocation Process of DOD. It is one of three major decision support systems for defense acquisition, along with the Joint Capabilities Integration and Development System (JCIDS) and the Defense Acquisition System. It is a formal, systematic structure for making decisions on policy, strategy, and the development of forces and capabilities to accomplish anticipated missions. PPBE is an annual process which produces the Secretary's Defense Planning Guidance (DPG), five year approved Program Objectives Memoranda (POMs), and one-year Budget Estimate Submissions (BES) for the military departments and defense agencies, and the DOD portion of the President's Budget (PB).

The current PPBE process has evolved from the Planning, Programming, and Budgeting System, introduced to the DOD in the 1960s by Secretary of Defense Robert McNamara (DAU, 2021). PPBE is designed to identify and fill requirements to accomplish the mission of the National Security Strategy (NSS). The PPBE process is designed to manage the resources available and anticipate future requirements and determine budget estimates across the five-year, future-year defense programs (FYDP). The PPBE process works in conjunction with the Joint Capabilities Integration and Development System (JCIDS), which determines the requirements, and the defense acquisition system, which obtains the items that meet those requirements. However, the timing of the three components is not in line with each other. JCIDS and the defense acquisition system are event-driven, while the PPBE process is calendar-driven.

The Navy's maintenance planners begin the planning phase with an annual report to Congress, *Report to Congress on the Annual Long-Range Plan of Construction of Naval Vessels.* The Navy provides a 30-year shipbuilding plan that shows the proposed new ships with the anticipated decommissioned ships along with the annual report. NAVSEA creates a life-cycle maintenance plan from these planning documents to identify the maintenance intervals required to ensure the ship reaches its stated end of service life. While depot maintenance is not an initial factor of shipbuilding in the planning phase, planners must

understand the life-cycle maintenance for future budgets. Also, planners must contend with ships requiring maintenance already within the budget years of the Program Objectives Memorandum (POM). The POM is a five-year proposal from each service that anticipates how the service will use its future resources to meet strategic guidance. Items required in the POM are force structure, major acquisition program starts, any program shortfalls and the risks associated with the shortfalls.

Former Secretary of Defense, James Mattis, made readiness his top priority after coming into the office (Mattis, 2017). In testimony to the SASC, former Vice Chief of Naval Operations (VCNO), ADM Bill Moran, reiterated Secretary Mattis' priority of readiness in a hearing on the Navy's state of readiness (*Current Readiness of U.S. Armed Forces*, 2017). Having the budgetary guidance from the SECDEF and VCNO, the programmers could prioritize shipyard maintenance over other projects now deemed "lower priority."

In the President's FY20 Budget proposal to Congress, a request was made to keep $3.3 billion OMN funds available for a two-year period for private contracted ship maintenance (White House, 2019). Knowing the need for greater flexibility and 20 percent of all unobligated OMN funds are from ship maintenance, the Senate transferred $1 billion from OMN 1B4B, ship maintenance and modernization account, to OPN (U.S. Senate, 2020). PACFLT, now, must budget OMN in addition to the new OPN appropriation.

The PACFLT Comptroller is responsible for the execution of the shipyard maintenance budget. The pilot program did not change this responsibility. This research focuses on determining the advantages and disadvantages the change in funding mechanisms had on the execution process.

C. PURPOSE

Limiting expenses based on purpose is derived from 31 U.S. Code § 1301(a), otherwise called the necessary expense doctrine, which states, "appropriations shall be applied only to the objects for which the appropriations were made except as otherwise provided by law." The necessary expense doctrine is a three-pronged test to determine a valid expense. First, the expense must have some rational relationship to the appropriation.

Second, the expense must not be prohibited by law. Lastly, the expense must not be appropriated elsewhere. If an expense fails any of the three test components, there is no legal authority to make the expense. If the expense passes all three components, the expense can be legally obligated (Candreva, 2008).

For example, an activity cannot use OMN to build a new building since the purpose of OMN is the operation and maintenance of the fleet, and military construction is a more appropriate funding source for the new construction of buildings. The activity, however, would be able to use OMN to rent a modular or temporary unit while a new building is working its way through the military construction process. OMN typically buys "verbs" (i.e., operations, training, maintenance) on an incremental or level-of-effort basis. In contrast, OPN typically buys "nouns" (i.e., support equipment, software, vehicles) on a per-unit basis. Depot-level maintenance has characteristics of both.

D. TIME

Government funds are appropriated for a specified period of time. Different funds have differing time frames to be used. OMN is typically one-year funding, while procurement is three-year funding, and military construction is five-year funding. In contrast, WCFs have no expiration date as long as they continue to be needed for the intended purpose.

One-year, three-year and five-year funds are generic terms meant to express the length of time an activity has to obligate the funds. An obligation is a legal authority to enter into a binding agreement for goods or services that will necessitate payment. The obligation period is intentionally stated in the Authorizations and Appropriations Act, so there is no confusion about the end date of obligation authority. The one-year FY20 OMN appropriation is available for new obligations from October 1, 2020, until September 30, 2021. The three-year FY20 OPN appropriation can obligate funds for new requirements from October 1, 2020, until September 30, 2023. After this timeframe, the appropriation becomes an expired account, and no new obligations are allowed (Department of Defense, 2019). The following five-year period is called the expenditure availability period (Candreva, 2008). The Department of Defense's *Financial Management Regulation* (2019)

states that during these five years, the account is available for liquidating previous obligations and for obligation adjustments, such as upward obligations for in-scope adjustments. After the fifth year, the appropriation account is closed. All remaining unexpended balances are canceled and returned to the Treasury as miscellaneous receipts (Department of Defense, 2019). Any future liquidation or obligation must be funded using available funds.

Figure 2 shows the timelines for the use of funds. For example, an overhaul starts in FY20, and a contract is awarded. Work is scheduled to be completed in late FY21. During FY21, additional in-scope work is discovered. If funded with OMN funds, there are two choices to fund the additional work. The first is to fund it with current year OMN funds, which will reduce the amount of funds planned for other purposes, including other ship overhauls. The second way to fund it would be through an upward obligation request. An upward obligation is the use of unobligated, expired appropriation for an in-scope adjustment to a previous fiscal year appropriation. Upward obligations require Navy and Defense Department approval and notification of Congress if the amount is over $10 million for ship overhauls. Amounts under $10 million require ASN (FMC) approval. The upward obligation request must include the amount, purpose, reason and contingencies or management practices that caused the request (Department of Defense, 2019). Upward obligations, historically, have taken between 26 and 189 days to approve (Oakley, 2020). The contracting officer determines an in-scope adjustment as being materially part of the scope of the original contract (Department of Defense, 2019). Out-of-scope items would include increases in quantity and increases in service levels, which should be funded with current year appropriations.

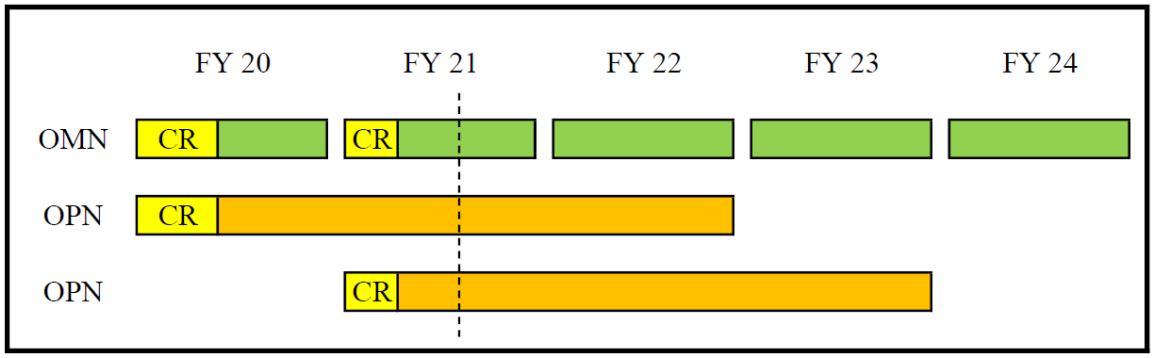

Figure 2. OMN and OPN Timelines.

When using the same scenario with OPN funds, there is no need for an in-scope or out-of-scope determination for the first three years since the funds have not expired. The shipyard can put the additional work on the contract using the same appropriation. Impacts to other overhauls are limited due to the funds still being in a current status.

The bona fide need rule addresses the time requirement of fund execution. A requirement must be valid in the time period to pass the bona fide need rule. The bona fide need rule prevents "stocking-up" on supplies needed in future fiscal years to anticipate a smaller budget or C.R. On the other hand, units can use current year funds for a needed repair that may take place in a future fiscal year. For example, a unit can spend current year funds in September for minor habitability work the contractor cannot perform in October because the ship's schedule will not permit the work until later. Further explanation about this limitation is discussed in the mission funding section later in this chapter.

Another determination to consider if the bona fide need rule is being adhered to is to look at the contracted task. Suppose the contracted work is a one-time act or service. In that case, it is considered non-severable (i.e., one-time tug service to pull a ship into drydock). Suppose the work functions can happen in different increments. In that case, it is considered severable (i.e., monthly tug ship service to service the fleet). For the former example, full funding of the contract is required. The Navy is responsible for funding the entire service up-front. For the latter example, the Navy can use incremental funding or pay on a monthly basis. For incremental funding, the contract year does not coincide with the fiscal year (Candreva, 2008).

E. AMOUNT

The ADA prohibits entities from spending funds they do not have. Overspending can come in three different ways. First, a unit can spend more money than it has been authorized or allocated. Second, a unit can spend funds that they have not been authorized or appropriated yet. The latter can happen in anticipation of future funding, as in a case of a new fiscal year, or more commonly, during a CR. Third, a unit accepts "voluntary" work performed by a contractor in anticipation of future funds. All three of these cases are violations of the ADA, punishable by law. They are required to be reported to the President, Congress, Comptroller General, and OMB regardless of the amount (FindLaw, 2016). Comptrollers have some measure of flexibility in transferring funds between appropriation sub-accounts (Candreva, 2008). While SECDEF can reprogram funds from one appropriation account to another (i.e., OPN to OMN) by notifying OMB and Congress, however, Congress reserves the right to block the reprogram, if desired.

F. SHIPYARD FUNDING

This section will summarize the current funding types used to fund depot-level shipyard maintenance. The Navy has used WCFs, OMN, and this OPN pilot program to pay for depot-level shipyard maintenance. This project is focused on the differences between OMN and OPN. Understanding how depot-level maintenance is funded is central to evaluate the benefits and challenges of the different funding methods.

Currently, the Navy uses OMN to fund depot-level ship repairs. However, in FY2020, Congress granted a pilot program to use multi-year OPN funds to determine if multi-year funding alleviates some burdens of OMN money. The budget justification (Office of the Under Secretary of Defense (Comptroller) [OUSD (C)], 2020b) identifies five advantages for the use of OPN funds:

1. Avoiding the end of fiscal year "loss" of OMN
2. Ability to operate under a CR
3. Better contracting timelines and negotiations

4. Reduces changes in ship repair scheduled due to execution year funding shortfalls
5. Ability to use funds in the second and third year (OUSD (C), 2020b).

Chapters IV and V will address if the execution has met the expectations of these advantages.

OMN and OPN are mission-funded appropriations, meaning the Navy justifies and budgets for the funds. Congress has to authorize and appropriate the funds every year via the NDAA and Appropriations Act described in Chapter III. This subsection will focus mainly on OMN and OPN. The benefits and disadvantages of each will be discussed in Chapters IV and V.

Figure 3 illustrates a simplified flow chart of mission-funded organizations. Congress authorizes and appropriates funds based on budget estimates and justifications. From there, the funding authority is sent down to the fleet commander via USD (C). The fleet commanders, then, fund the cost of the ship maintenance.

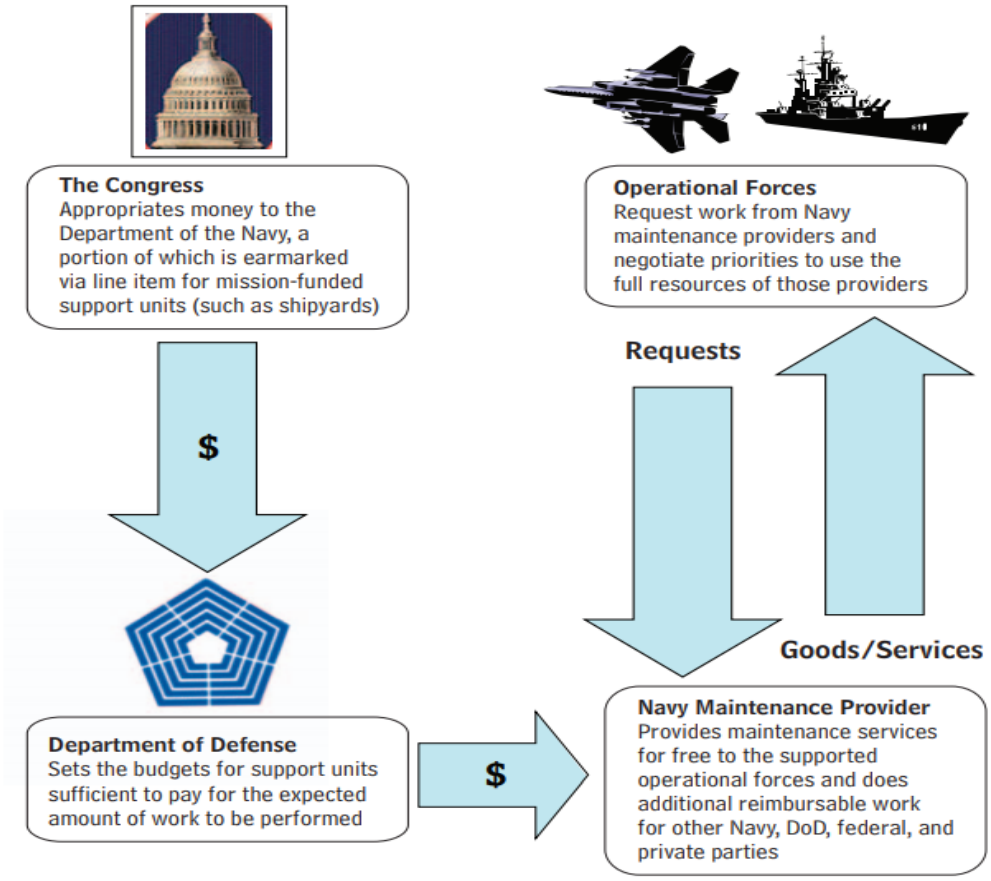

Figure 3. How Mission Funding Operates. Source: Frisk and Trunkey (2007).

a. Operation and Maintenance, Navy

The Navy changed its depot-level shipyard funding structure from WCF to OMN, starting with Pearl Harbor in 1998, Puget Sound in 2003 and Portsmouth and Norfolk in 2006 (Congressional Business Office [CBO], 2007).

According to USD (C), "The Operation and Maintenance, Navy (OMN) appropriation finances the day-to-day costs of operating naval forces, training, including fuel, supplies, and maintenance of ships, Navy and Marine Corps aircraft, related weapon systems, and the support establishment ashore" (2020a, p. 7).

OMN is a one-year, expense-type account where the activity has budgeted, justified, and been authorized and appropriated funds. The funds are customarily

apportioned quarterly. OMN accounts are used similarly to a personal bank account. Once funds are deposited, debits can be made against the account until there are no funds left. It is an ADA violation to spend more funds than are allocated. OMN budgets must go through the PPBE process every year to justify their expenses.

The Navy uses four budget activities to manage OMN funds based on purpose and types of activity (USD (C), 2020a).

- BA 01: Operating Forces
- BA 02: Mobilization
- BA 03: Training and Recruiting
- BA 04: Administration and Service-wide Activities (USD (C), 2020a, p. 2).

Each of these Budget Activities is further broken down into activity groups:

- 1A: Air Operations
- 1B: Ship Operations
- 1C: Combat Operations
- 1D: Weapons Support
- 1E: Base Operations (USD (C), 2020a, p. 2).

The activity groups are further broken down into sub-activity groups. Since this research is focused on ship operations, the sub-activity groups are:

- 1B4B: Mission and Other Ship Operations
- 1B2B: Ship Operations Support and Training
- 1B4B: Ship Depot Maintenance
- 1B5B: Ship Depot Operations (USD (C), 2020a, p. 2).

Initial funding for this pilot project was transferred from 1B4B, ship depot maintenance funds, to an OPN line item explicitly created for this program. The goal of OMN is to spend every dollar appropriated on time without going over budget. OMN funds are commonly referred to as “use or lose” because if the funds are not obligated by the end of the fiscal year, the activity has lost the ability to obligate the funds. The Senate noted that ship maintenance accounts for more than 20 percent of undisbursed balances every year to justify the formation of the pilot program.

b. Procurement

Procurement, in this thesis, does not refer to the lay term of obtaining a good or service. Rather the specific purposes laid forth in the NDAA and Appropriations Act referring to the acquisition of investments other than military construction. Procurement, in this sense, is an investment type account for items valued at over $250,000. Items below this threshold can be purchased using OMN funds. The Department of the Navy operates eight procurement programs, weapons procurement, shipbuilding and conversion, national defense sealift, consolidated spares and repair parts, aircraft procurement, ammunition, and other procurement (USD(C), 2021a). This thesis is focused on other procurement funds.

USD (C) states, OPN funds are three-year procurement funds used for "procurement, production, and modernization of support equipment and materials not otherwise provided for … expansion of public and private plants … and procurement and installation of equipment" (2021a, Vol. 1-v). Peters and McGarry (2021) note, procurement funds typically fund non-construction related items, over $250,000, such as:

- new military hardware (e.g., aircraft, ships, armored vehicles, radios and satellites)
- upgrades to existing equipment, including service life extension or remanufacturing programs
- weapons and ammunition (e.g., air-to-air missiles and rifle rounds)
- spares and repair parts (Peters & McGarry, 2021, p.1).

Generally, procurement funds fall under the *full funding* policy, meaning the entire procurement must have the entire program funded at the start of the procurement. Occasionally, in the case of submarines, procurement can happen on an *incremental funding* policy (Peters & McGarry, 2021).

Regular procurement cycles are not designed to line up with the PPBE cycle. The procurement timeline is results-driven, while the PPBE process is calendar-driven. However, this pilot program transferring OMN funds to OPN does not suffer from this ailment since it was not required to navigate the defense acquisition system and JCIDS process.

Focusing on OPN, Congress put language into the FY2020 NDAA and FY2020 Department of Defense Appropriations Act expressly granting authority for the Navy to use OPN for this ship depot-level maintenance project.

The FY 2020 NDAA explicitly authorizes PACFLT to use OPN for a pilot program for ship depot maintenance .

> For procurement, production, and modernization of support equipment and materials not otherwise provided for…$10,075,257,000, to remain available for obligation until September 30, 2022: Provided, *That such funds are also available for the maintenance, repair, and modernization of Pacific Fleet ships under a pilot program established for such purposes* (Emphasis added).

The FY 2020 Department of Defense Appropriation Act specifically appropriates OPN funds for the pilot program.

> For procurement, production, and modernization of support equipment and materials not otherwise provided for…$10,568,201,000, to remain available for obligation until September 30, 2022: *Provided*, *That such funds are also available for the maintenance, repair, and modernization of Pacific Fleet ships under a pilot program established for such purposes* (Emphasis added).

THIS PAGE INTENTIONALLY LEFT BLANK

IV. DATA ANALYSIS

A questionnaire was sent to FMB and PACFLT's comptroller and maintenance teams to determine the reasoning to ask for multi-year funding, alternative solutions and how they adapted to the change in funding structures. All three entities responded. This chapter will use those responses to answer the secondary questions listed in Chapter I.

A. REASONS TO ASK CONGRESS FOR THE CHANGE

What was the reason to ask Congress to change the funding structure of ship depot maintenance?

The respondents identified three main reasons for asking Congress for a multi-year funding option for ship depot maintenance. The first is the ability to utilize the funds across fiscal years and continuing resolutions. Second, multi-year funds could be used to mitigate inaccurate and incomplete maintenance planning. Finally, the multi-year funding will reduce upward obligations requests. Taken together, the respondents believe multi-year funding will give the Navy more financial flexibility and better use of limited funds.

FMB and PACFLT maintenance planners asserted that two-year OMN funding would better coincide with the duration of the majority of availabilities. Two-year OMN funding would create more flexibility for multi-year availabilities by providing a stable funding source during the second year (and third year for OPN funding) when 75 percent of availabilities are completed. Multi-year funds moderate the effects of CRs because funds can be obligated throughout the CR since the funds have not expired. The expectation is that having an appropriation available to use over multiple years and through a CR allows for better contract negotiations without the restrictions imposed on one-year OMN funds at the end of the FY. Also, the planners can address emergent repair requirements without being rushed to complete the contract toward the end of the fiscal year.

PACFLT maintenance planners noted that multi-year funding allows the time necessary for proper planning of availabilities for the Navy and the contractors by eliminating the compressed contracting timeline and "use-or-lose" funding toward the end of the fiscal year. The planners noted fiscal law constraints, specifically the time and

amount restrictions, create pressure to spend funds toward the end of the FY inefficiently; otherwise, they risk losing the ability to spend the funds. The priority is to get a contract awarded over completing a proper inspection of the material condition and work requirements needed to entirely correct discrepancies. Proper planning of availabilities allows for more accurate and complete contracts that are more favorable to the government. The funding stability allows the shipyards to better schedule and manage their workflow, overhead, and labor, thereby reducing their business risk. Additionally, two-year funds allow for the descoping of work and to be able to de-obligate funds and re-obligate the funds for another availability in the second (or third) year without the funds expiring, thus giving the Navy more buying power by spending all of the funds it is appropriated.

FMB further stated that maintenance planners have inadequately understood the material conditions of ships in availabilities resulting in undervaluing the full scope of work and cost required. The delta between what was identified and what needs to be repaired has adverse impacts on fleet readiness. It increases the cost and time of the availability. Using multi-year funds promotes more efficient use of appropriated funds by negotiating favorable contracts and utilizing all available funds, thus, reducing the expired funds returned to the Treasury. The more accurate contracts, stability of funding, and reduction of business risk allow more competitive bids from shipyards which, typically, end up below the government's estimated cost. More accurate and complete contracts give more realistic timeframes and costs, reducing the need to shuffle maintenance schedules to meet current shipyard capacity and fiscal year constraints.

Lastly, the Navy is attempting to limit the number of upward obligation packages. Reducing this administrative burden allows the teams to refocus their efforts on operational tasks. The benefits they anticipated were to reduce the administrative burden and delay of upward obligation requests since 75 percent of availabilities end in the second or third year. The multi-year funds would still be available to obligate without delaying an availability between 26 and 189 days waiting for the OMN upward obligation request to be approved. Multi-year appropriations make adjustments in the second and third years quicker and easier than the upward obligation process, which could benefit the on-time rates for the completion of overhauls. The expectation for the respondents is that the multi-year funds

will have been obligated efficiently over the length of the appropriation, and there will not be a need for an upward obligation after the appropriation expires.

PACFLT comptroller teams were not involved in the discussions about asking Congress for two-year OMN funds.

The respondents were not privy to the Congressional decision-making process that determined the OPN funds versus the OMN funds. However, they surmised it was because OPN was a three-year appropriation already in place.

B. POSITIVES IDENTIFIED

What positive outcomes did the change to OPN create?

The respondents noted several positive outcomes from this pilot program: the efficient use of maintenance funding throughout the fiscal year has led to more efficient contracts. Stable funding has led to more favorable contracts leading to increased buying power. Quicker and easier obligation adjustments have led to fewer upward obligation requests during the pilot program.

This pilot program extended contract lead times, allowing for long-lead-time items to be purchased, improved partnerships with industry, and address emergent repair requirements that occur toward the end of the fiscal year without inefficiently rushing through the contracting process, noted PACFLT maintenance planners. Earlier identification of long-lead-time materials and government-furnished equipment allows the Navy to bundle like material needed for multiple ship availabilities, thereby increasing the buying power of the Navy. The increased buying power leads to cost savings which can be used toward ship maintenance. These outcomes allow the Navy to leverage its buying power better. OPN funds grant the financial stability for the Navy to procure long-lead-time materials and government-furnished equipment earlier in the process, knowing the maintenance work will be funded.

FMB also reported to Congress (Department of the Navy, 2021) that the new contracts were more thoroughly complete when awarded. These new contracts require fewer modifications which reduces delays in maintenance and increases the efficiency of

the contracting workforce. OPN funding allows for earlier contracting without the pressure of expiring funds. The ability to use unobligated FY20 funds in FY21 and FY22 creates additional buying power and adaptability. This benefit was realized during the COVID-19 pandemic, where some work could not be completed during the fiscal year. PACFLT was able to use the money in FY21 instead of losing the money. Additionally, two availabilities were contracted during the FY21 CR.

The stable funding of multi-year funds increases the cooperation between the government and contractors, which benefits the Navy and the shipyards. Both sides reduce their business risk with multi-year funding. The government is assured of three years of the use funds while reducing the volatility for the contractors. The assurance of funding has led to multiple competitive contract bids during this pilot program. Sudden reductions in maintenance funding create chaos within the shipyard community. The inability to forecast future business leads to safe management decisions, which, in turn, increases the cost to the government by limiting contract competition. Volatile budgets can lead to an unstable workforce where employees are continually laid off and rehired. Ship maintenance is skilled labor in which it takes years for a contractor to recoup the initial costs of hiring and training a new employee. The funding stability allows the contractors to project their revenues accurately and fund their labor, overhead, and capital investments accordingly.

FMB reported to Congress (Department of the Navy, 2021) that an additional availability was awarded because of the cost savings from receiving competitive bids from contractors. Without the pressure of funds expiring, $101 million of the FY20 OPN funds were obligated in FY21, and $7 million remains available for the remainder of FY21 and FY22. Additionally, PACFLT used the OPN funds during the FY21 CR.

FMB and PACFLT comptroller teams noted the obligations could be adjusted anytime during the three years of OPN funds instead of one-year OMN. The two additional years to obligate funds lead to the reduced impact of new and growth work at the end of an availability. With OMN, if the availability stretches over multiple fiscal years, there are three resolutions; first, the Navy can defer the maintenance to another availability. Second, the Navy can submit an upward obligation package to use expired funds. And alternatively,

third, the Navy can use current year funds to pay for the maintenance. All three of the options limit the financial flexibility the Navy has. With the OPN funds, the Navy can pay for the maintenance without impacting future requirements

C. NEGATIVES IDENTIFIED

What adverse outcomes did the change to OPN create?

The respondents noted three adverse outcomes from the pilot program. The transfer of OMN funds to OPN limits the financial flexibility and adaptability of the OMN account. Initial challenges were responding to the change in appropriation accounts, which led to additional work. And the scope of the pilot limits how the funds can be utilized.

All three entities addressed that the transfer of OMN funds to OPN limits the ability of the OMN account to absorb shortfalls in other areas funded by OMN funds. Before the pilot, shifting availabilities could result in cost savings, which could be used to cover other expenses, such as unfunded civilian personnel raises or public shipyard maintenance activities. The PACFLT Comptroller asked for a reprogramming authority to move funds between 1B4B, OMN and OPN, but it was not granted.

Challenges in building institutional knowledge and business practices to accommodate the change were noted by all respondents. Since this was a pilot program that began three months into the FY, there were some inefficiencies in the beginning. Computer systems had to be redesigned to handle the new appropriation. The funding had to be reversed from OMN to OPN since PACFLT had already contracted availabilities using the only available appropriation.

PACFLT comptroller teams stated that because FY20 began during a CR, PACFLT began contracting ship availabilities using OMN funds. After the NDAA and Appropriations Act became law, the contracts had to be modified to use OPN funds. This process was time-consuming and laborious, which took five months to complete. Two additional personnel were added to manage the financial management workload caused by the additional funding source. Also, programming budget exhibits had to be recreated to

reflect the correct appropriation. The budget exhibits were an initial adverse outcome but will become a neutral change in subsequent years.

In addition, programming budget exhibits, specifically the OP-30, had to be created to justify the budget request to Congress. System engineering tracking tools had to be redesigned to account for the additional appropriation, PACFLT officials stated. Financial management software, specifically Standard Accounting, Budgeting, and Reporting System (SABRS), Command Financial Management System (CFMS), and Program/Budget Information System (PBIS), had to be updated to include the additional appropriation. The additional work required to begin this project is communicated as an adverse outcome because the change in funding happened in the middle of the execution year. The entities had to adjust their priorities and staff to accomplish the products. This issue should turn into a neutral change in the subsequent years.

PACFLT comptroller and maintenance teams noted that the scope of the pilot program limits it to only private depot-level maintenance. While OMN is used for forward-deployed naval forces, other restricted availabilities/technical availabilities, continuous maintenance, emergent restricted availabilities/technical availabilities, and intermediate-level maintenance. This limitation requires the PACFLT teams to closely monitor their expenditures to ensure these availabilities are being funded with the correct appropriation. This restriction limits the pilot program by design to test this change in a structured way to reduce risk to the maintenance community.

D. SUMMARY

To assess this pilot program, recall the maintenance and funding problems the Navy faces, as described in Chapter II. The less organizational maintenance completed onboard led to longer and more expensive depot-level availabilities. A lack of stable funding due to the CRs led to inefficient contract management toward the end of the FY and business risk for the Navy and shipyards. Finally, the shorter window of funds availability led to rushed planning and contracting where the Navy inadequately understood the material condition of the ships and contracted for incomplete availabilities.

This pilot program does not address the amount of organizational maintenance performed onboard ships; however, it does address the depot maintenance issues that stem from them. The pilot program allows maintenance planners more time to identify the issues and create a more complete plan to address them. The better and more complete the initial planning is, the more accurate the repair timelines are. This increased accurateness allows the fleet schedulers to better manage their assets and responsibilities.

Lack of stable funding has long plagued the Navy's readiness. This pilot program gives the funding stability the Navy needs. It ensures funds are available for three years. This stability allows the Navy to better plan availabilities and negotiate more favorable contracts with the shipyards by reducing the business risk for the Navy and shipyards. It reduces the administrative burden and delays caused by upward obligation requests because the funds are available for three years.

Finally, the pilot program allows for more efficient use of funds throughout the entire year. Due to perennial CRs, the Navy is rarely able to use the entire year to obligate their funding, leading to rushed, inefficient processes toward the end of the FY. This pilot program lengthens the availability of funds which allows the maintenance planners more time to efficiently obligate their funding without the pressure of losing that funding at the end of the FY. Efficient planning has led to more complete and more favorable contracts for the Navy. The additional time has also allowed the planners to award contracts at the 120-days before the contract start, as identified in its best practices.

In conclusion, this pilot program corrects many of the inefficiencies that have plagued the OMN funding process. OPN funds allow the maintenance planners the time to identify more repairs that decrease the new and growth work, which delays on-time deliveries and increases the availability costs. The additional time also allows for a better and more complete contracting process, which reduces business risk to the Navy and shipyards resulting in more favorable contract awards. Finally, having three years to obligate the funds allows for quicker and easier adjustments which reduce the administrative burden and delays caused by upward obligations.

THIS PAGE INTENTIONALLY LEFT BLANK

V. CONCLUSION

The purpose of this research was to investigate if the PACFLT pilot program using OPN funding instead of OMN funding for private shipyard depot maintenance resolved the funding and financial flexibility problems, created new problems, or created neutral changes. This research focused on the viewpoint of the Navy Secretariat, PACFLT's comptroller and maintenance team. This research aimed to answer four research questions related to the change in funding structure and the adaptation of the change. A questionnaire was used to identify issues related to each area.

A. SUMMARY

To summarize this research, one must look at the central question posed in Chapter I. The following conclusion was made after analyzing the questionnaire answers and quarterly and annual reports to Congress.

Did changing funding sources from OMN to OPN achieve more financial flexibility for ship depot maintenance?

Changing the funding source from OMN to OPN did achieve more financial flexibility for ship depot maintenance. Five main benefits and one secondary benefit were achieved. First, it allowed for better contracting strategies to be used. Second, the Navy can recapitalize on deobligated funds and descoped availabilities. Third, those contracting strategies allowed for competitive bids from contractors, reducing the amount of most contracts. Fourth, it allows for the use of OPN funds during a CR. Finally, it alleviates the time pressures for contracting toward the end of the fiscal year. Unbeknown when authorized, it allowed for better spending and planning during the COVID-19 crisis without the risk of "use-or-lose" funds.

The Navy has identified a best practice of awarding a ship maintenance contract 120 days before the availability starting (U.S. Navy, 2021). By switching from a one-year appropriation to a three-year appropriation, the Navy and the contractor base can better plan availabilities and bundle long-lead-time materials and government-furnished equipment to utilize the available funding effectively.

The Navy has identified, and Congress has acknowledged (U.S. Senate, 2020) that 20 percent of OMN funds that are unobligated come from the 1B4B ship maintenance account. The loss of this funding creates further readiness gaps for the fleet. The loss of funds has a two-fold effect. First, the Navy is unable to utilize the funds that were authorized and appropriated. Second, current year funds that were not programmed or budgeted would have to be used for any new or growth work that arises. The ability to reobligate funds increases the Navy's buying power and enhances fleet readiness by using the funds for the purpose and amount it was authorized and appropriated.

Stable funding means the contractors are assured of future work and can more accurately plan their projects and workforce. This stability has resulted in less risk for the contractors, which results in more favorable contracts for the Navy. Since the pilot project began, the savings were enough to award an additional contract in FY 20.

Continuing resolutions have been a budgetary norm for the past 50 years. Since 1971, only ten times has the defense appropriations passed and signed into law on time (DeBruyne & Torreon, 2020). Debruyne & Torreon also noted that the average CR lasted 72 days when late. Having a CR last for over two months each year has a dramatic effect on the buying power of the Navy. It also gives business risk to the shipyards. Combining the reduced buying power and business risk for the contractors, the Navy has been negotiating from an inferior position. Using OPN during CRs effectively flips the power continuum and gives the Navy a superior position at the negotiating table. Also, it allows the Navy to exercise the necessary funds vice the funds available to maintain the fleet.

The end of the fiscal year creates legally imposed timelines and barriers not seen outside the government. These barriers and timelines create a pressurized atmosphere within the government to use the available funds or are lost forever. The pressure to use the funds has resulted in business risk for the Navy. The Navy is rushed into shortened planning and scoping of work and has, historically, inadequately understood the material condition of the ships and undervalued the work needed to be performed to maintain the ships. This time constraint has led to rushed contracts that necessitate growth work and new work, which has led to upward obligations to pay for the work without using current year funds.

Some negatives should be noted. First, using two different funding appropriations has limited the ability of the fleet to cover financial shortfalls in other areas that may take priority over ship maintenance. This negative impact is a permanent limitation on the use of OPN funds. Second, the pilot program was only used for private shipyard availabilities. Only half of the shipyard availabilities are private, while the other half are public. This thesis cannot be generalized to private shipyards since procurement funds are generally not allowed for civilian personnel. Third, much re-work had to be done to change the already-contracted ship availabilities to OPN from OMN. Third, much work products had to be created on the fly because there was no prior warning that the multi-year funding would be OPN instead of the two-year OMN requested. Programming and budget exhibits had to be redone. Computer systems and systems execution tracking systems had to be redesigned to handle the new appropriation. This negative impact is temporary and has already been resolved.

This thesis supports the further use of OPN funds for private shipyard depot-level maintenance. The Navy also believes this pilot program is beneficial. Therefore, the FY22 President's Budget has requested to increase funding for this pilot, continue the PACFLT pilot, and expand it to include USFF.

B. LIMITATIONS AND AREAS FOR FURTHER STUDIES

This thesis was limited in the duration of the data and the scope of the respondents. Data collection occurred in the second year of a three-year appropriation. Data sources were only gathered from the Secretariat and PACFLT. After the third-year timeframe, there are future opportunities for research to include data from Congress or its agents and other Defense Department stakeholders.

1. Additional Stakeholders

Additional stakeholders that could have been consulted include the HASC, SASC, HAC and SAC. In addition, NAVSEA, the shipyard contractors, the fleet schedulers, and PEOs are stakeholders in the ship maintenance process that were not included in this study.

The viewpoint of these entities would help gain a more comprehensive view of the positives and negatives associated with the funding change.

2. Reassess after FY 23

This thesis was written in the middle of the pilot project. Therefore, qualitative analysis of the pilot program to determine the actual financial impacts of the pilot program would enable the decision-makers better information to make this program permanent or revert to OMN funding.

3. United States Fleet Forces Anticipated Pilot

The Presidential Budget for FY 22 has included a pilot program for United States Fleet Forces (USFF) to use OPN for private ship depot maintenance. Therefore, a comparison between PACFLT and USFF could be beneficial to see if the efficiencies identified in the PACFLT pilot are by design or by happenstance.

APPENDIX. QUESTIONNAIRE

Questions for PACFLT Comptroller and Maintenance Personnel

Questions about the nature of the problem(s) and alternative solutions

1. What were the problems that funding overhauls with one-year funds caused the Navy to seek multi-year funding authority?
2. What was the argument for how would 2-year O&MN funding would resolve those problems?
3. Were any new or different problems with 2-year O&MN anticipated?
    a. If so, what were they?
    b. What were the mitigation strategies?
4. Has the use of OPN resolved the fundamental problems associated with one-year funds?
5. What new or different problems has OPN created?
    a. How are they being mitigated?
6. What new flexibilities or opportunities were presented with OPN funds that were not anticipated?
    a. How are they being taken advantage of?
7. What was the rationale behind granting the Navy OPN instead of multi-year O&MN?

Questions about adapting to the change

1. Explain any differences in the funds flow for OPN compared to O&MN. I.e., are funds received annually versus quarterly, or are funds received later in the FY, or are they more or less affected by continuing resolutions?
2. Explain any differences in the scope of what may be procured in OPN versus O&MN. I.e., is the Navy permitted to do everything that had been funded under 1B4B under OPN, or more, or less?
3. What processes or systems needed to be changed to process OPN funding?
4. Typically, OPN is budgeted on a line item basis and depot maintenance on an activity (level of effort) basis. What is the "line item" for OPN overhauls? I.e., is it a single line item, the hull number, the type of availability, a portion of the work package?
    a. If there is more than one OPN line item, do you need to do a formal (ATR or BTR) to shift funds from one hull (or other line item) to another?
5. What is different about adjusting obligations based on changes to the scope or price of an availability when funded with OPN versus O&MN?
6. Typically, an overhaul includes both maintenance tasks (O&MN funded) and modernization work (OPN or SCN funded). Has that changed, and how?
7. Work in domestic yards is still funded with O&MN and only contracted work in commercial yards is funded with OPN. What affect has this had on overall fleet maintenance flexibility and responsiveness?

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

Button, R., Martin, B., Sollinger, J., & Tidwell, A. (2015). *Assessment of surface ship maintenance requirements* (Report No. RR1155). RAND Corp. https://www.rand.org/pubs/research_reports/RR1155.html

Cain, A. M. (2006). *Comparison of the Navy Working Capital Fund and mission funding as applied to Navy shipyards* [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun http://hdl.handle.net/10945/2786

Candreva, P. (2008). Financial management. In R. Rendon and K. Snider (Eds.), *Management of Defense Acquisition Projects* (1st ed., pp. 189–230). American Institute of Aeronautics and Astronautics, Inc.

Candreva, P. (2017). *National defense budgeting & financial management*. IAP Press.

Chief of Naval Operations (2019). *A design for maintaining maritime superiority* (Fragmentary Order 01/2019). https://media.defense.gov/2020/Jul/23/2002463491/-1/-1/1/CNO%20FRAGO%2001_2019.PDF

Clark, M. (2020). *U.S. Navy shipyards desperately need revitalization and a rethink* (Report No. 3511). The Heritage Foundation. https://www.heritage.org/sites/default/files/2020-07/BG3511.pdf Congressional Budget Act, 31 U.S.C. 1301 § 302 (1974).

Debruyne, N., & Torreon, B., (2020). *Defense Authorization and Appropriations Bills: FY1961-FY2020* (Report No. 98–756). Congressional Research Service. https://fas.org/sgp/crs/natsec/98-756.pdf

Defense Acquisition University (n.d.). *Planning, programming, budgeting & execution process (PPBE)*. https://www.dau.edu/acquipedia/pages/ArticleContent.aspx?itemid=154

Department of Defense (2019, May). *Financial Management Regulation Volume 1–16*. https://comptroller.defense.gov/Portals/45/documents/fmr/Combined_Volume1-16.pdf

Department of the Navy (2020, February). *Department of the Navy Fiscal Year (FY) 2021 Budget Estimates*. https://www.secnav.navy.mil/fmc/fmb/Documents/21pres/OPN_BA1_BOOK.pdf

Department of the Navy (2021, February). *Annual assessment of the FY 2020 pilot program for private contracted ship maintenance. First annual report*. [Unpublished report].

Eckstein, M. (2019, March 21). *Navy needs more dry docks for repairs, says first-ever maintenance report*. https://www.csmarinellc.com/news/2019/4/4/navy-needs-more-dry-docks-for-repairs-says-first-ever-maintenance-report

Eckstein, M. (2020, October 13). *NAVSEA: Analysis of ship repair processes led to better on-time rates, more realistic schedules*. https://news.usni.org/2020/10/13/navsea-analysis-of-ship-repair-processes-led-to-better-on-time-rates-more-realistic-schedules

FindLaw. (2016, June 20). *The Anti-Deficiency Act: What you need to know*. https://www.findlaw.com/military/administrative-issues-benefits/the-anti-deficiency-act-what-you-need-to-know.html

Frisk, D., & Trunkey, R. (2007). *Comparing working-capital funding and mission funding for naval shipyards*. Congressional Budget Office. https://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/79xx/doc7997/04-12-shipyards.pdf

Herrera, G. (2020). *Defense Primer: Defense Working Capital Funds* (Report No. IF11233). Congressional Research Service. https://crsreports.congress.gov/product/pdf/IF/IF11233

Martin, M., McMahon, M., Riposo, J., Kallimani, J., Bohman, A., Ramos, A., & Schendt, A. (2017). *A strategic assessment for the future of U.S. Navy ship maintenance: challenges and opportunities* (Report No. RR 1951). RAND Corporation. https://www.rand.org/content/dam/rand/pubs/research_reports/RR1900/RR1951/RAND_RR1951.pdf

Mattis, J. (2017, January 31). *Implementation guidance for budget directives in the National security presidential memorandum on rebuilding the U.S. Armed Forces* [Memorandum]. Department of Defense. https://news.usni.org/wp-content/uploads/2017/02/OSD001007-17-FINAL-RES.pdf

Mcnellis K., Saturno J., Heniff Jr., B., & Murray, J. (2020). *Continuing resolutions: Overview of components and practices* (Report No. R46595). Congressional Research Service. https://crsreports.congress.gov/product/pdf/R/R46595

Oakley, S. (2020). *Navy ship maintenance: Evaluating pilot program outcomes could inform decisions to address persistent schedule challenges* (Report No. GAO-20-370). Government Accountability Office. https://www.gao.gov/assets/gao-20-370.pdf

Office of the Assistant Secretary of the Navy (Financial Management & Comptroller) (2021). *Report to Congress on Navy ship depot maintenance: FY 2021 annual report* [Unpublished report].

Office of the Chief of Naval Operations (2019). *Maintenance Policy for Navy Ships* (OPNAVINST 4700.7M). Department of the Navy. https://www.secnav.navy.mil/doni/Directives/04000%20Logistical%20Support%20and%20Services/04-700%20General%20Maintenance%20and%20Construction%20Support/4700.7M.pdf

Office of the Under Secretary of Defense (Comptroller). (2020a). *Department of the Navy Fiscal Year (FY) 2021 Budget Estimates, Justification Book, Operation and Maintenance, Navy.* Department of Defense. https://www.secnav.navy.mil/fmc/fmb/Documents/21pres/OMN_Book.pdf

Office of the Under Secretary of Defense (Comptroller). (2020b). *Department of the Navy Fiscal Year (FY) 2021 Budget Estimates, Justification Book Volume 1 of 5, Other Procurement, Navy BA 01*. Department of Defense. https://www.secnav.navy.mil/fmc/fmb/Documents/21pres/OPN_BA1_BOOK.pdf

Peters, H., & McGarry, B. (2021). *Defense Primer: Procurement* (Report No. IF10599). Congressional Research Service. https://crsreports.congress.gov/product/pdf/IF/IF10599

Potvin, L. (2013). *A handbook for the defense department financial manager*. 12th Edition. United States Naval Postgraduate School, Monterey, California, April 2013.

Ship and submarine maintenance: Hearing before the Armed Services Committee, Senate, 116th Cong. (2019) (testimony of James Guerts & Thomas Moore). https://www.armed-services.senate.gov/imo/media/doc/Geurts--Moore_12-04-19.pdf

U.S. Const. art. I § 9.

U. S. Senate. (2020). *Department of Defense Appropriations Bill, 2020* (Report No. 116–103). https://www.congress.gov/116/crpt/srpt103/CRPT-116srpt103.pdf

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Ft. Belvoir, Virginia

2. Dudley Knox Library
   Naval Postgraduate School
   Monterey, California